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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,812	11/26/2003	Se-Hwan Son	29137.051.00	8128
30827 7590 09/10/2007 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER YAMNITZKY, MARIE ROSE	
			ART UNIT 1774	PAPER NUMBER
			MAIL DATE 09/10/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/722,812

Applicant(s)

SON ET AL.

Examiner

Marie R. Yamnitzky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 February 2007 and 14 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 7, 9-22, 24, 25 and 46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 9-22, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>07 Feb 2007</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. This Office action is in response to applicant's amendment filed June 14, 2007, which amends the specification, amends claims 1 and 2, and cancels claims 4-6, 8, 23, 26-42 and 45.

Claims 1-3, 7, 9-22, 24, 25 and 46 are pending.

2. The references cited in the Information Disclosure Statement filed February 07, 2007 have been considered by the examiner and are made of record.

3. The rejection under 35 U.S.C. 102(b) based on Ueno et al. (US 6,436,559 B1) as evidenced by Tang et al. (US 4,769,292) is partly rendered moot by claim cancellation and otherwise overcome by claim amendment.

The rejection under 35 U.S.C. 102(b) based on Son et al. (WO 01/49806 A1) as evidenced by Tang et al. (US 4,769,292) is partly rendered moot by claim cancellation and otherwise overcome by claim amendment.

The rejection under 35 U.S.C. 103(a) based on Son et al. (WO 01/49806 A1) in view of Tang et al. (US 4,769,292) is partly rendered moot by claim cancellation. The rejection remains applicable to claims 1-3, 7, 9-22, 24 and 25 for reasons set forth in this Office action.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 7, 9-22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Son et al. (WO 01/49806 A1) in view of Tang et al. (US 4,769,292).

See the entire Son et al. publication. In particular, see Fig. 1, page 5, line 10-p. 6, l. 8, p. 6, l. 21-p. 10, l. 4 and p. 12, l. 14-p. 14, l. 12.

Son et al. describe electroluminescent devices comprising a compound of present Formula I. In the devices of Son's examples, the compound of present Formula Ia is used. The compound of present Formula Ia inherently meets the limitation recited in present claim 3. The exemplary devices also comprise a substrate, with the anode positioned between the substrate and the layer comprising the compound of Formula Ia. The devices further comprise a light-emitting layer positioned between the cathode and the layer comprising the compound of Formula Ia.

The devices of Son's examples meet the limitations of the device of present claims 1-3, 7, 9, 12-17 and 25 except for the present claim requirement that the anode comprise aluminum or silver. The additional limitations of present claims 10, 11, 18-22 and 24 are also not met by the devices of Son's examples.

The devices of Son's examples have a transparent ITO (indium tin oxide). However, Son's devices are not limited to devices having ITO anodes (e.g. see p. 9, l. 19-24).

Tang et al. teach that cathodes or anodes may be made of transparent or opaque materials (one of ordinary skill in the art would recognize that opaque materials may also be reflective), and teach that metals used for anodes generally have a work function of greater than 4 eV (e.g. see c. 39, l. 44-c. 42, l. 40). Aluminum and silver are disclosed by Tang et al. as metals having a

work function of 4.0-4.5 eV. It would have been within the level of ordinary skill of a worker in the art at the time of the invention to select suitable materials for the anode and the cathode of Son's device from known materials based on knowledge in the art, such as the teachings of Tang et al. Based on the teachings of Tang et al., for example, one of ordinary skill would have been motivated to select anode materials within the upper portion of the range set forth in present claim 2.

Further with respect to present claim 17, which requires the anode to comprise a metal oxide material as well as aluminum or silver, it would have been an obvious modification to one of ordinary skill in the art at the time of the invention to use combinations/composites of materials known in the art at the time of the invention to be suitable for anodes.

With respect to present claim 10, while Son's exemplary devices do not have an intervening layer between the anode and the layer comprising the compound of Formula Ia, Son's disclosure that the compound may be used in the hole-transporting layer (15) of a device having the structure of anode (13)/hole-injecting layer (14)/hole-transporting layer (15) suggests the device structure of claim 10.

Further, different layered structures, such as anode on substrate or cathode on substrate, would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention as these different structures were known in the art at the time of the invention.

6. Applicant's arguments filed February 07, 2007 have been fully considered but they are not persuasive.

Applicant argues that Son fails to teach or suggest an anode comprising aluminum or silver, and argues that Tang fails to cure this deficiency. The examiner respectfully disagrees. Son's devices are not limited to the anode compositions that are specifically disclosed in the reference, and Tang lists aluminum and silver among metals that have a work function suitable for use as anode metals.

7. Claim 46 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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9. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY  
September 03, 2007



**MARIE YAMNITZKY  
PRIMARY EXAMINER**

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